NRCS
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Utah Water Supply Outlook Report

Mar, 2005

Highway 14 near Duck Creek Ranger Station, February 25, 2005. Photo by Lynn Kitchen, NRCS, USDA.

Water Supply Outlook Reports
and
Federal - State - Private
Cooperative Snow Surveys

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How forecasts are made

Most of the annual streamflow in the western United States originates as snowfall that has accumulated in the mountains during the winter and early spring. As the snowpack accumulates, hydrologists estimate the runoff that will occur when it melts. Measurements of snow water equivalent at selected manual snowcourses and automated SNOTEL sites, along with precipitation, antecedent streamflow, and indices of the El Niño / Southern Oscillation are used in computerized statistical and simulation models to prepare runoff forecasts. These forecasts are coordinated between hydrologists in the Natural Resources Conservation Service and the National Weather Service. Unless otherwise specified, all forecasts are for flows that would occur naturally without any upstream influences.

Forecasts of any kind, of course, are not perfect. Streamflow forecast uncertainty arises from three primary sources: (1) uncertain knowledge of future weather conditions, (2) uncertainty in the forecasting procedure, and (3) errors in the data. The forecast, therefore, must be interpreted not as a single value but rather as a range of values with specific probabilities of occurrence. The middle of the range is expressed by the 50% exceedance probability forecast, for which there is a 50% chance that the actual flow will be above, and a 50% chance that the actual flow will be below, this value. To describe the expected range around this 50% value, four other forecasts are provided, two smaller values (90% and 70% exceedance probability) and two larger values (30%, and 10% exceedance probability). For example, there is a 90% chance that the actual flow will be more than the 90% exceedance probability forecast. The others can be interpreted similarly.

The wider the spread among these values, the more uncertain the forecast. As the season progresses, forecasts become more accurate, primarily because a greater portion of the future weather conditions become known; this is reflected by a narrowing of the range around the 50% exceedance probability forecast. Users should take this uncertainty into consideration when making operational decisions by selecting forecasts corresponding to the level of risk they are willing to assume about the amount of water to be expected. If users anticipate receiving a lesser supply of water, or if they wish to increase their chances of having an adequate supply of water for their operations, they may want to base their decisions on the 90% or 70% exceedance probability forecasts, or something in between. On the other hand, if users are concerned about receiving too much water (for example, threat of flooding), they may want to base their decisions on the 30% or 10% exceedance probability forecasts, or something in between. Regardless of the forecast value users choose for operations, they should be prepared to deal with either more or less water. (Users should remember that even if the 90% exceedance probability forecast is used, there is still a 10% chance of receiving less than this amount.) By using the exceedance probability information, users can easily determine the chances of receiving more or less water.

STATE OF UTAH GENERAL OUTLOOK
Mar 1, 2005

SUMMARY
One month left in the normal snowpack accumulation season and we are all reminded what happened last March - incredibly warm and dry. Could we have a repeat of last years disaster and what would it mean for this years water supply. Given record snowpacks in southern Utah and the Uintah basin, a warm dry March would certainly lessen the potential for high streamflows by extending the snowmelt period and removing some of the lower elevation snowpack early on. This kind of climatic scenario could lead other parts of Utah, specifically northern and central, to the same kind of result experienced last year where snowpacks were near to above average and were subsequently devastated by a record warm and dry March. So, if it's not too much to ask, warm and dry in the south and Uintah Basin with wet and cool in the central and northern areas would be just perfect. Overall, water supply conditions are improving statewide compared to years past with reservoir storage on the upswing, soil moisture is vastly improved and snowpacks are all above average. Snowpacks range from 103% over the Bear River Watershed to 237% over southwest Utah. The Uintah Basin at 157% of average is a new record high for March, but incredibly, the 237% in southern Utah is now only in second place to 1993. Many areas have already exceeded an average April 1 peak snowpack such as: Uintah Basin - 129% of average April 1 peak, Sevier - 136%, Southeast - 121% and the Southwest - 211% of April 1. With record snowpacks, comes the potential for very high snowmelt streamflow. For some streams like Coal Creek which has over 297% of average snowpack and has broken the old maximum record snowpack by 6.5 inches of snow water equivalent, it is likely not if, but merely when the high flows will occur. This is the equivalent of breaking the 4 minute mile by 30 seconds. Normally, long term climate records are broken by fractions of inches or tenths of degrees, not shattered by half a foot! While many outcomes remain possible in these areas, it is prudent to begin preparation for potentially high snowmelt streamflow this spring. Precipitation for February was near average statewide at 101%. Northern Utah ranged from 80% to 110% and southern Utah had 115% to 165% of average. This brings the seasonal precipitation, (Oct-Feb) to 145%. Soil moisture was substantially recharged from large precipitation events in late fall and early winter as well as the recent precipitation events. Current soil moisture as a percent of saturation across the entire state is only about 10% to 15% less than what it was during active snowmelt of last spring. Estimates of soil moisture range from about 40% to 75% of saturation in the upper 24 inches of soil. Low reservoir storage is becoming less of a concern with total reservoir storage at 45% of capacity, up 4% from last year. The area of greatest drought concern is the Bear River with current reservoir storage at only 4% of capacity. Areas that could have high streamflows include the Uintah Basin, southeast Utah, Escalante, upper Sevier and the Virgin. Streamflow forecasts range from 51% to 299% of average. Surface Water Supply Indices range from 4% on the Bear River, to 95% on the Virgin.

SNOWPACK
February first snowpacks as measured by the NRCS SNOTEL system range from 103% on the Bear to 237% in southwestern Utah. Most areas in northern Utah are 10% to 20% higher than last year, whereas the Uintah Basin and everything south of Salina have 150% to 200% of the snowpacks of last year. The Midway Valley SNOTEL site currently has 58 inches of snow water equivalent and its April 1 average peak is only 27 inches. Of some concern are low elevation snowpacks across the state, which are below average. The Uintah Basin, Upper Sevier and southwest Utah have already surpassed their April 1 snowpack average and could easily be in the 150% to 200% of average category by April 1. Any outcome is still possible in northern Utah, including continued drought conditions.

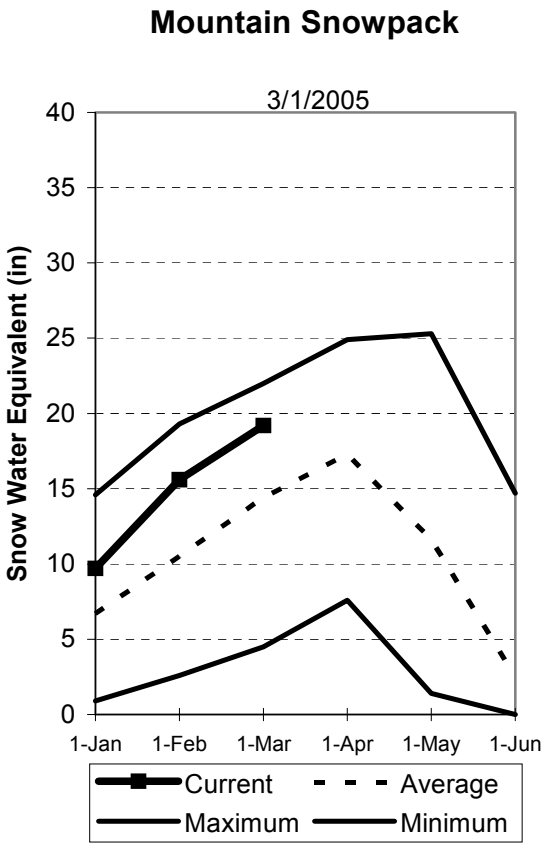
PRECIPITATION
Mountain precipitation during February was much above average over southern Utah (115%-165%). In northern Utah, precipitation was 80% to 102% of average. This brings the seasonal accumulation (Oct-Feb) to 145% of average statewide.

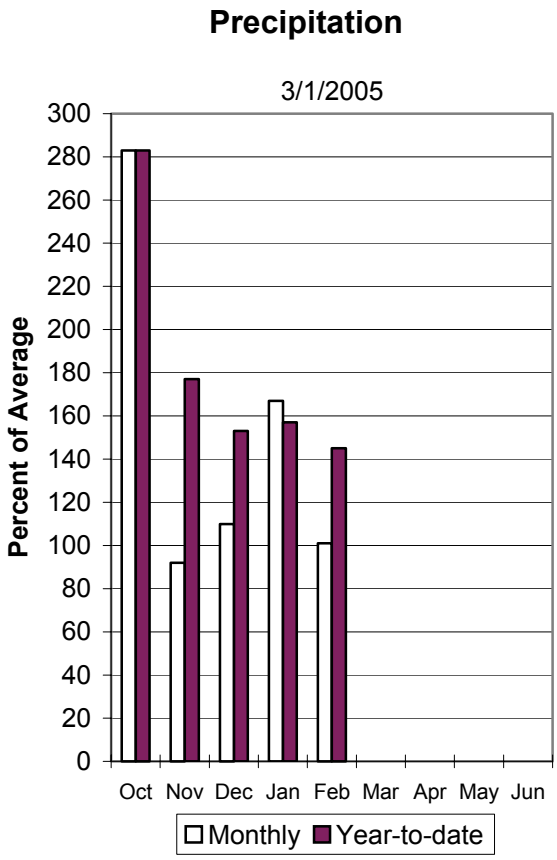
RESERVOIRS

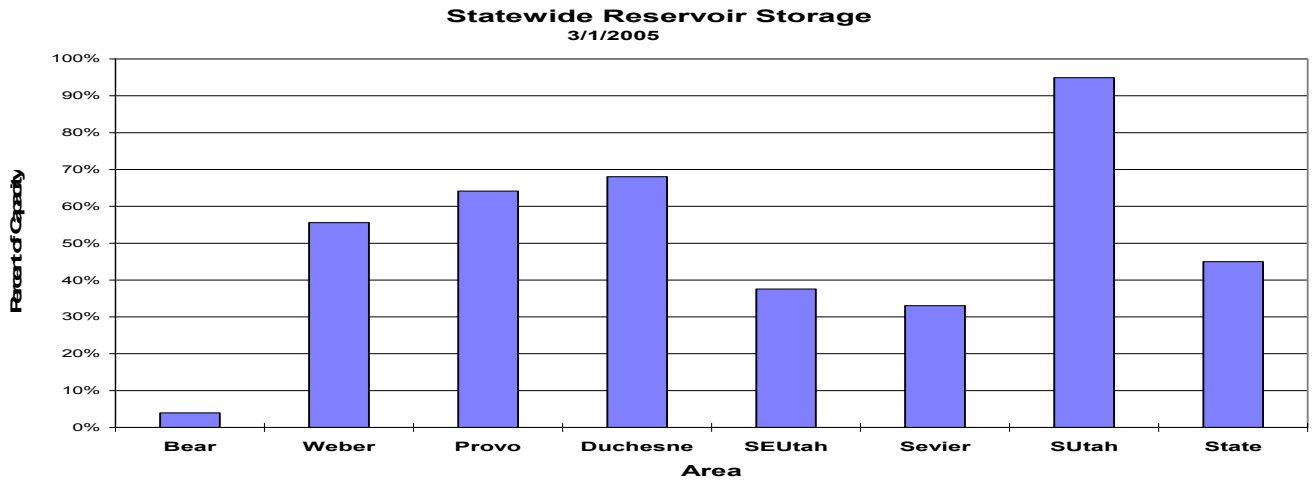
Storage in 41 of Utah's key irrigation reservoirs is at 45% of capacity. This is an increase of 4% from last year and reflects heavy use of reservoir storage to make up the streamflow deficit during years of drought.

STREAMFLOW

Snowmelt streamflows are expected to be below average to well above average across the state of Utah this year. Forecast streamflows range from 51% on the Bear at Stewart dam to 299% on North Creek near Monticello. Most flows are forecast to be in the 100% to 160% range. Overall water supply conditions are improving.

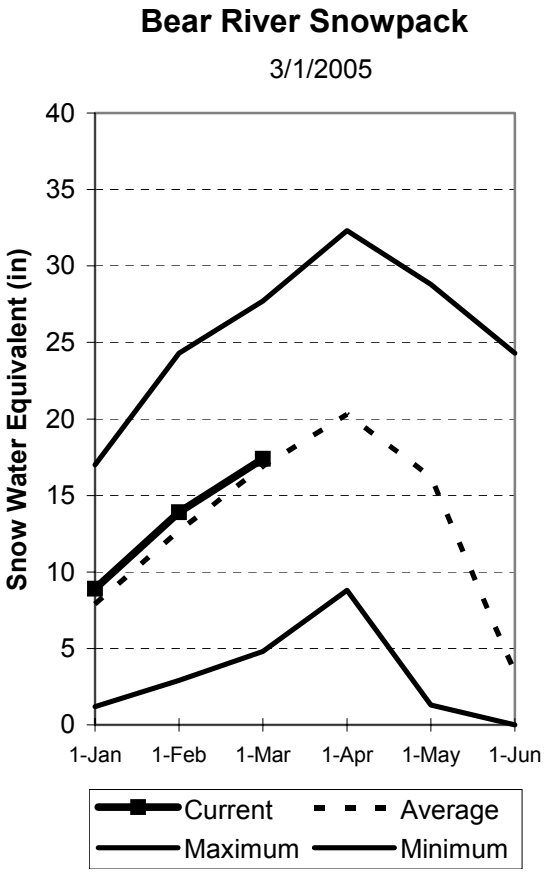


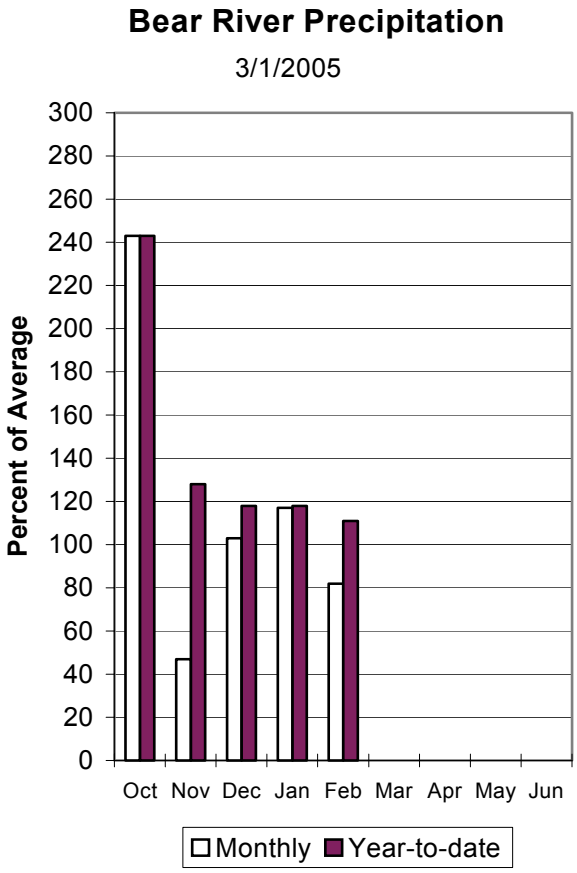


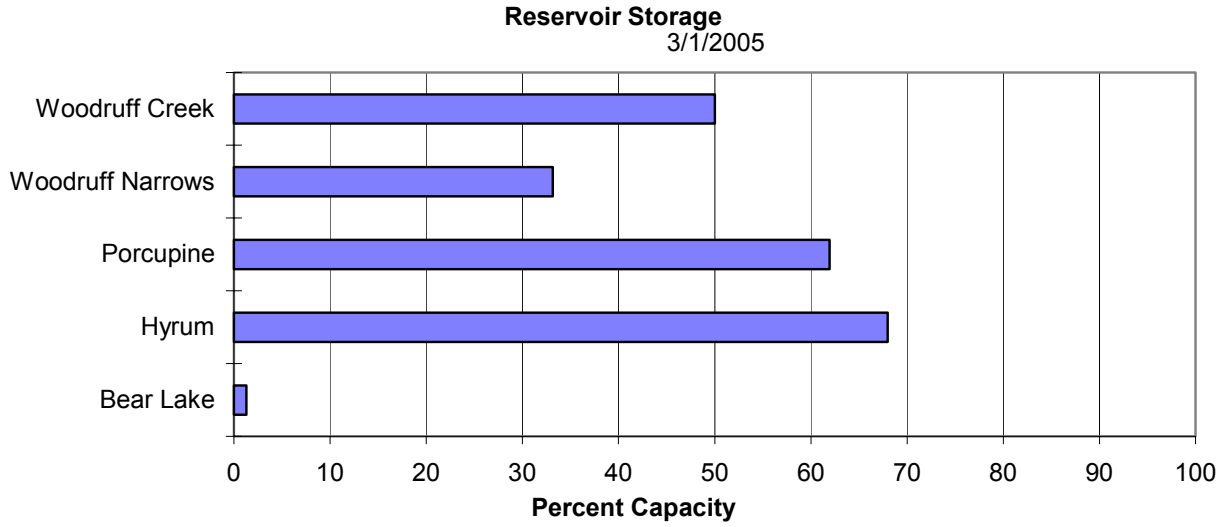


Bear River Basin
Mar 1, 2005

Snowpacks on the Bear River Basin are near average at 103% of normal, about 112% of last year and 6% less than last month. Specific sites range from 72% to 142% of normal. February precipitation was a little below average at 82%, which brings the seasonal accumulation (Oct-Feb) to 111% of average. Soil moisture levels in runoff producing areas are at 68% of saturation in the upper 2 feet of soil compared to 33% last year and up 1% from last month. Forecast streamflows range from much below to near average (47%-115%) volumes this spring. Reservoir storage is extremely low at 4% of capacity, the same as last year. The Surface Water Supply Index is at 4% for the Bear River, or 96% of years have had more total water available. Water supply conditions are much below normal due to low reservoir storage.







BEAR RIVER BASIN
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Bear River nr UT-WY State Line	APR-JUL	97	114	126	112	138	155	113
Bear River ab Reservoir nr Woodruff	APR-JUL	109	137	156	115	175	205	136
Big Creek nr Randolph	APR-JUL	2.50	3.60	4.30	88	5.00	6.10	4.90
Smiths Fork nr Border	APR-JUL	68	82	91	88	100	114	103
Bear River at Stewart Dam	APR-JUL	66	96	119	51	145	187	234
Little Bear River at Paradise	APR-JUL	23	32	38	83	45	57	46
Logan River nr Logan combined flow	APR-JUL	87	105	118	94	132	154	126
Blacksmith Fork nr Hyrum	APR-JUL	28	38	46	96	55	69	48

BEAR RIVER BASIN
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
BEAR LAKE	1302.0	17.0	34.4	---
HYRUM	15.3	10.4	8.4	11.0
PORCUPINE	11.3	7.0	6.0	5.6
WOODRUFF NARROWS	57.3	19.0	7.5	27.6
WOODRUFF CREEK	4.0	2.0	2.0	---

BEAR RIVER BASIN
Watershed Snowpack Analysis - March 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
BEAR RIVER, UPPER (abv Ha	6	127	109
BEAR RIVER, LOWER (blw Ha	8	105	98
LOGAN RIVER	4	119	111
RAFT RIVER	1	61	73
BEAR RIVER BASIN	14	113	103

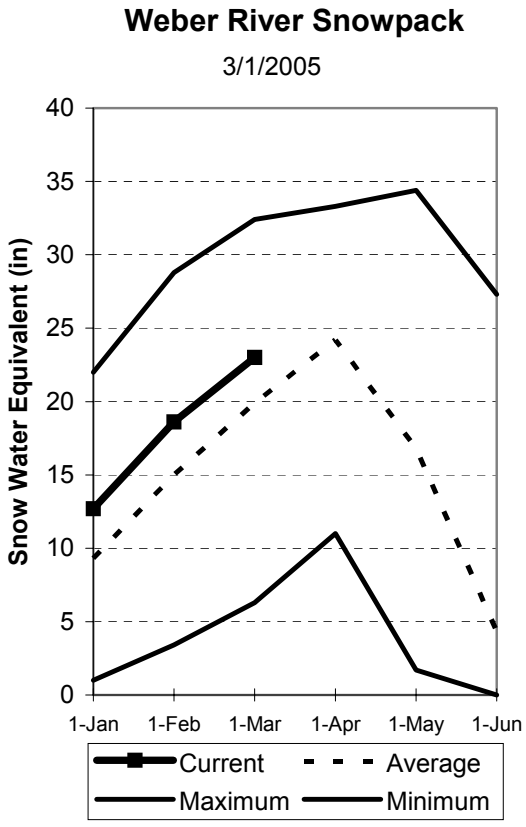
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

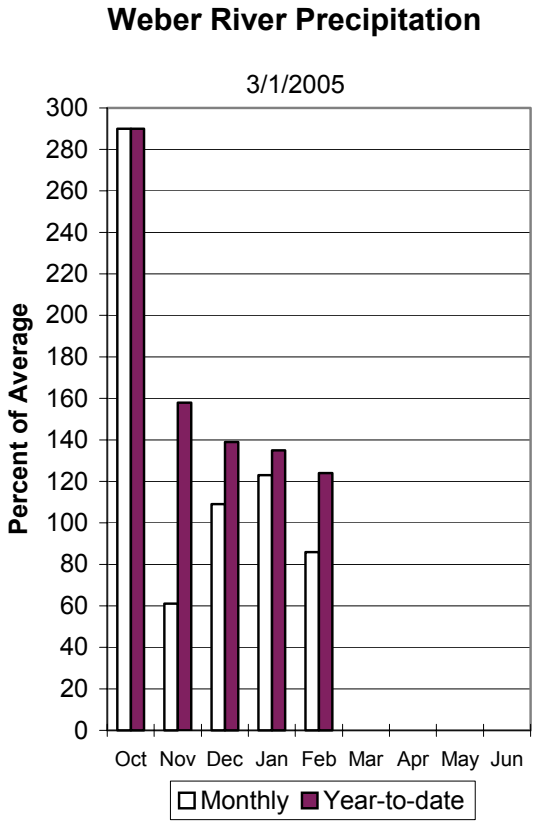
The average is computed for the 1971-2000 base period.

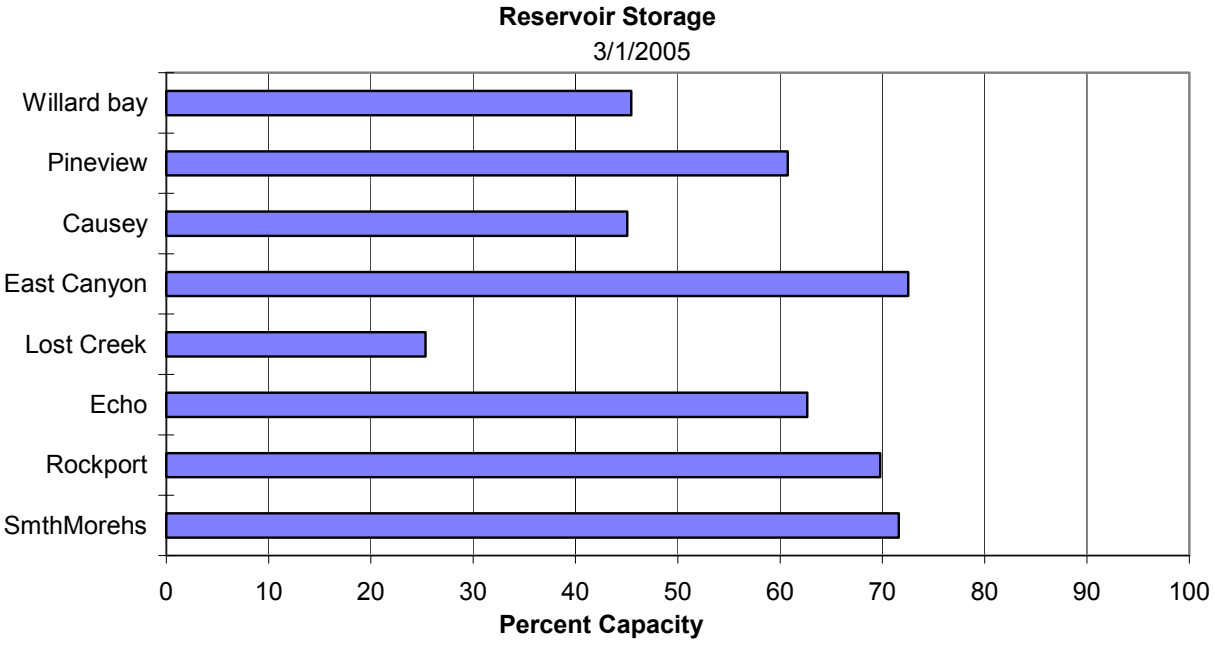
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Weber and Ogden River Basins
Mar 1, 2005

Snowpack on the Weber and Ogden Watersheds is slightly above normal at 115% of average, about 112% of last year and down 12% from last month. Individual sites range from 85% to 170% of average. February precipitation was below average at 86% bringing the seasonal accumulation (Oct-Feb) to 111% of average. Soil moisture levels in runoff producing areas are at 69% of saturation in the upper 2 feet of soil compared to 30% last year and the same as last month. Streamflow forecasts range from 91% to 121% of average. Reservoir storage is at 56% of capacity, about 19% more than last year. The Surface Water Supply Index is at 49% for the Weber River and at 49% for the Ogden River. Overall water supply conditions are near normal and improving.







WEBER & OGDEN WATERSHEDS in Utah
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Smith & Morehouse Res inflow	APR-JUL	29	34	37	109	40	45	34
Weber River nr Oakley	APR-JUL	109	126	137	111	148	165	123
Rockport Reservoir inflow	APR-JUL	110	134	150	112	166	188	134
Weber River nr Coalville	APR-JUL	119	147	155	113	190	225	137
Chalk Creek at Coalville	APR-JUL	31	42	49	109	56	67	45
Echo Reservoir inflow	APR-JUL	148	180	200	112	220	250	179
Lost Creek Reservoir inflow	APR-JUL	9.1	13.0	16.0	91	19.3	25	17.6
East Canyon Reservoir inflow	APR-JUL	23	29	33	107	38	45	31
Weber River at Gateway	APR-JUL	285	350	390	110	430	495	355
SF Ogden River nr Huntsville	APR-JUL	42	55	63	98	71	84	64
Pineview Reservoir inflow	APR-JUL	83	108	125	94	142	167	133
Wheeler Creek nr Huntsville	APR-JUL	5.30	6.70	7.60	121	8.50	9.90	6.30

WEBER & OGDEN WATERSHEDS in Utah
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
CAUSEY	7.1	3.2	2.4	2.6
EAST CANYON	49.5	35.9	26.2	35.4
ECHO	73.9	46.3	42.0	51.0
LOST CREEK	22.5	5.7	4.2	13.9
PINEVIEW	110.1	66.9	34.7	52.6
ROCKPORT	60.9	42.5	30.7	33.2
WILLARD BAY	215.0	97.7	55.5	154.9

WEBER & OGDEN WATERSHEDS in Utah
Watershed Snowpack Analysis - March 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
OGDEN RIVER	4	100	102
WEBER RIVER	9	106	123
WEBER & OGDEN WATERSHEDS	13	104	115

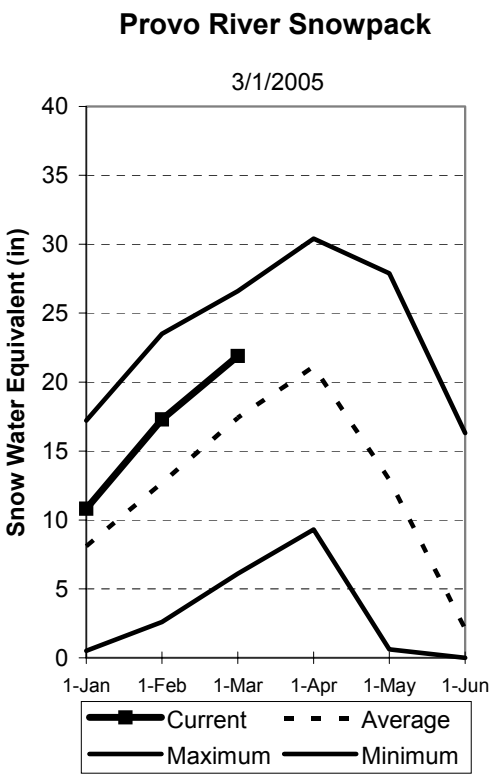
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

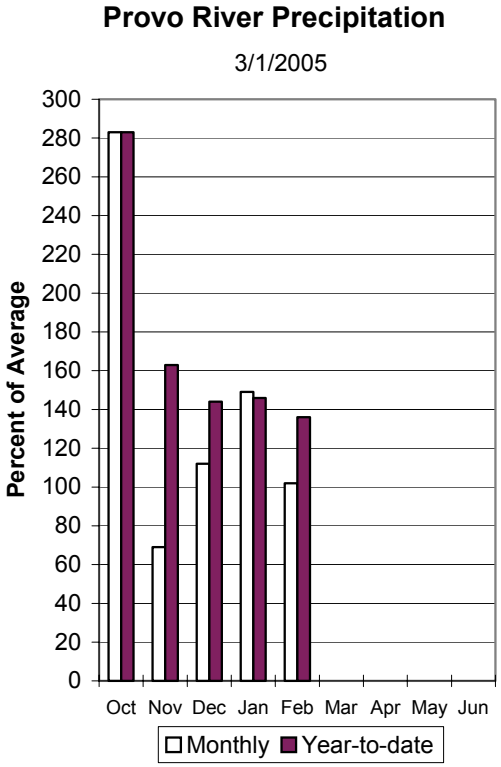
The average is computed for the 1971-2000 base period.

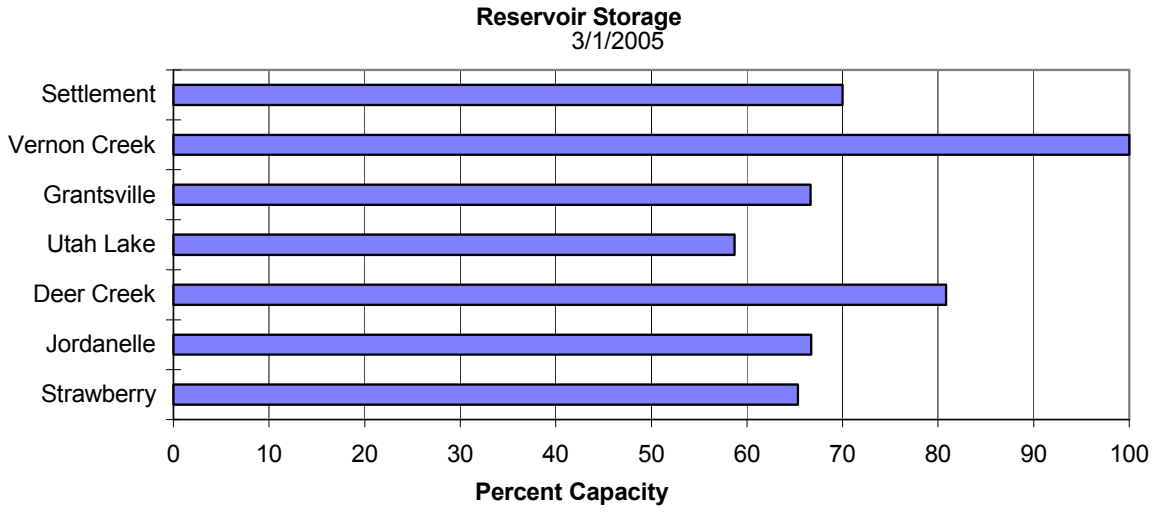
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Utah Lake, Jordan River & Tooele Valley Basins
Mar 1, 2005

Snowpacks over these watersheds are at 126% of average, 113% of last year and down 15% from last month. Individual sites range from 66% to 172% of average. February precipitation was near average at 102%, bringing the seasonal accumulation (Oct-Feb) to 136% of average. Soil moisture levels in runoff producing areas are at 76% of saturation in the upper 2 feet of soil compared to 38% last year and up 1% from last month. Forecast streamflows range from 84% to 150% of average. Reservoir storage is at 64% of capacity, 1% more than last year. The Surface Water Supply Index is at 49%, or 51% of years would have more total water available. General water supply conditions are near normal and improving.







UTAH LAKE, JORDAN RIVER & TOOELE VALLEY
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Spanish Fork River nr Castilla	APR-JUL	42	62	85	110	109	128	77
Provo River nr Woodland	APR-JUL	91	108	120	117	132	149	103
Provo River nr Hailstone	APR-JUL	92	116	130	119	145	168	109
Provo R blw Deer Creek Dam	APR-JUL	96	128	150	119	172	205	126
American Fk R nr American Fk	APR-JUL	39	45	48	150	51	57	32
Utah Lake inflow	APR-JUL	255	334	405	125	476	555	325
Little Cottonwood Ck nr SLC	APR-JUL	44	49	53	133	57	62	40
Big Cottonwood Ck nr SLC	APR-JUL	43	49	53	140	57	63	38
Mill Creek nr SLC	APR-JUL	4.30	5.82	7.00	100	8.18	9.70	7.00
Parley's Creek nr SLC	APR-JUL	6.2	10.3	14.0	84	17.7	22	16.7
Dell Fork nr SLC	APR-JUL	1.97	4.36	5.80	85	7.24	9.70	6.80
Emigration Creek nr SLC	APR-JUL	0.50	2.32	3.70	82	5.08	6.90	4.50
City Creek nr SLC	APR-JUL	5.10	6.35	8.00	92	9.65	12.90	8.70
Vernon Creek nr Vernon	APR-JUL	0.84	1.14	1.40	95	1.72	2.33	1.48
Settlement Creek nr Tooele	APR-JUL	1.16	1.57	1.90	96	2.27	2.91	1.97
South Willow Creek nr Grantsville	APR-JUL	2.80	3.70	4.20	130	4.70	5.60	3.23

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
DEER CREEK	149.7	121.0	60.3	107.4
GRANTSVILLE	3.3	2.2	1.1	2.2
SETTLEMENT CREEK	1.0	0.7	0.6	0.6
STRAWBERRY-ENLARGED	1105.9	722.5	776.1	637.8
UTAH LAKE	870.9	511.3	465.2	825.1
VERNON CREEK	0.6	0.6	0.5	---

UTAH LAKE, JORDAN RIVER & TOOELE VALLEY
Watershed Snowpack Analysis - March 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
PROVO RIVER & UTAH LAKE	7	122	125
PROVO RIVER	4	131	134
JORDAN RIVER & GREAT SALT	6	106	127
TOOELE VALLEY WATERSHEDS	3	93	126
UTAH LAKE, JORDAN RIVER &	16	110	126

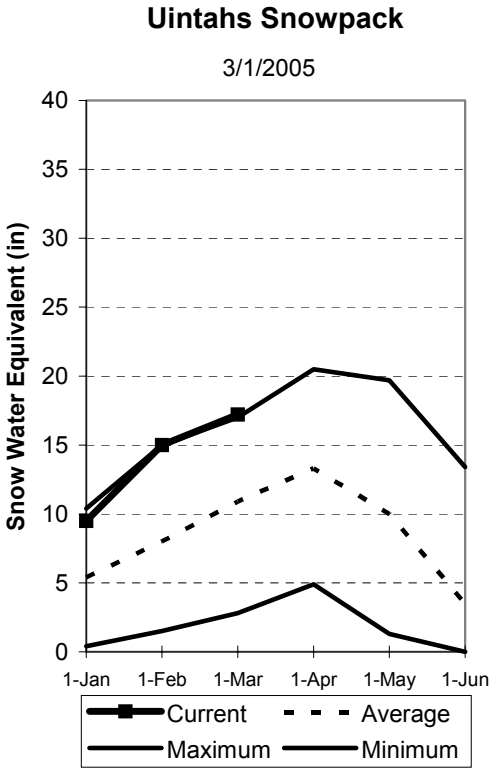
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

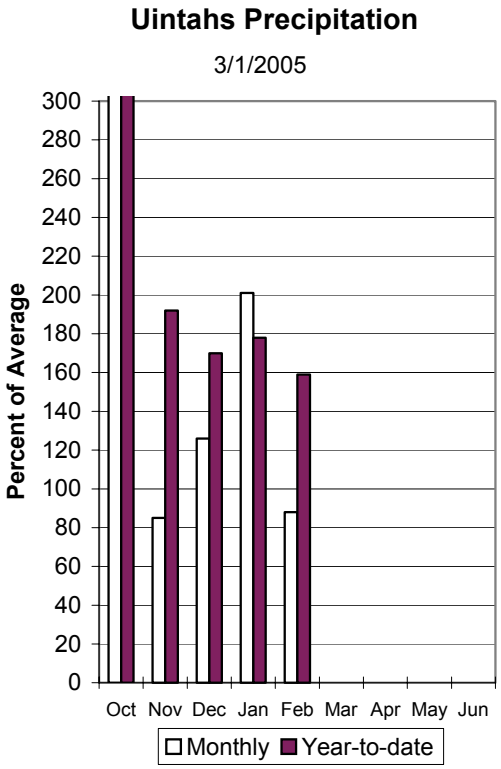
The average is computed for the 1971-2000 base period.

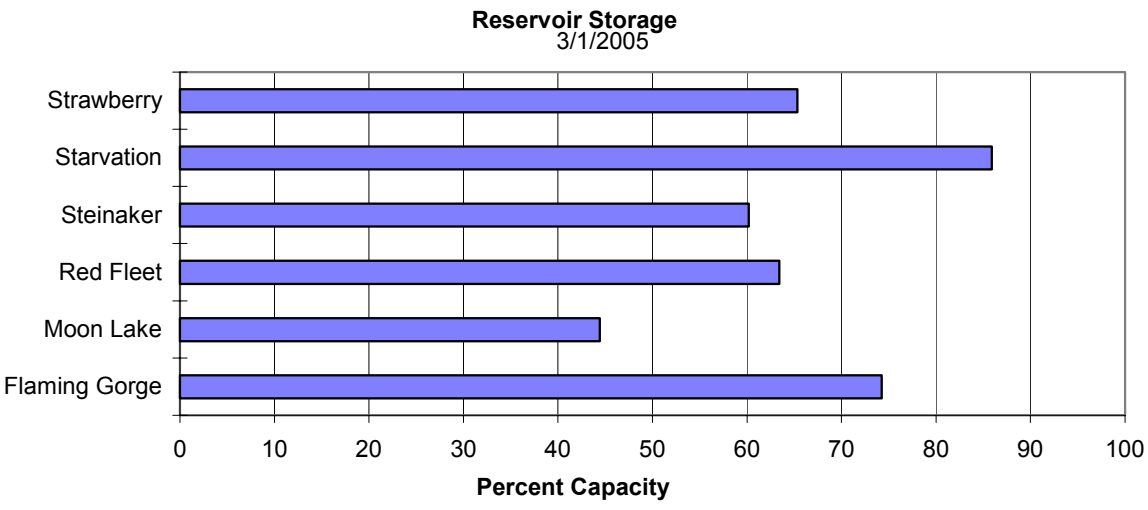
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Uintah Basin and Dagget SCD's
Mar 1, 2005

Snowpacks across the Uintah Basin and North Slope areas are much above average and above record levels at 157%, which is 147% of last year and down 35% from last month. The North Slope ranges from 88% to 212% and the Uintah Basin ranges from 114% to 239% of average. Precipitation during February was below average at 88% bringing the seasonal accumulation (Oct-Feb) to 159% of average. Soil moisture values in runoff producing areas are at 58% of saturation in the upper 2 feet of soil compared to 30% last year, the same as last month. Reservoir storage is at 68% of capacity, 3% less than last year. The Surface Water Supply Index for the western area is 74% and for the eastern area it is 81% indicating above normal conditions basin wide. Streamflow forecasts range between 84% and 194% of average. Springtime runoff conditions are above normal. Snowpacks are at 129% of normal April 1 values and with normal March accumulations will be near 150% this April. Preparation for high flows should be considered.







UINTAH BASIN & DAGGET SCD'S
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Blacks Fork nr Robertson	APR-JUL	67	84	95	100	106	123	95
EF of Smiths Fork nr Robertson	APR-JUL	23	27	30	97	34	40	31
Flaming Gorge Reservoir Inflow	APR-JUL	670	870	1000	84	1130	1330	1190
BIG BRUSH CK abv Red Fleet Resv	APR-JUL	23	27	30	143	33	37	21
Ashley Creek nr Vernal	APR-JUL	65	80	90	173	100	115	52
WF DUCHESNE RIVER nr Hanna	APR-JUL	18.6	25	30	125	35	44	24
DUCHESNE R nr Tabiona	APR-JUL	104	119	130	124	141	156	105
UPPER STILLWATER RESV inflow	APR-JUL	106	117	125	152	133	144	82
ROCK CK nr Mountain Home	APR-JUL	114	126	135	152	144	156	89
DUCHESNE R abv Knight Diversion	APR-JUL	215	250	275	146	300	335	188
STRAWBERRY RES nr Soldier Springs	APR-JUL	47	63	75	127	88	110	59
CURRANT CREEK RESV Inflow	APR-JUL	23	27	30	120	33	37	25
STARVATION RESERVOIR inflow	APR-JUL	111	134	150	124	166	189	121
Lake Fork River abv Moon Lake	APR-JUL	82	93	100	147	107	118	68
Yellowstone River nr Altonah	APR-JUL	70	85	95	153	105	120	62
DUCHESNE R at Myton	APR-JUL	340	405	450	173	495	560	260
Whiterocks River nr Whiterocks	APR-JUL	73	92	105	188	118	137	56
DUCHESNE R nr Randlett	APR-JUL	390	535	630	194	725	870	325

UINTAH BASIN & DAGGET SCD'S
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
FLAMING GORGE	3749.0	2784.0	2600.0	2919.0
MOON LAKE	49.5	22.0	16.6	29.8
RED FLEET	25.7	16.3	13.8	18.4
STEINAKER	33.4	20.1	12.8	22.8
STARVATION	165.3	142.0	147.0	135.9
STRAWBERRY-ENLARGED	1105.9	722.5	776.1	637.8

UINTAH BASIN & DAGGET SCD'S
Watershed Snowpack Analysis - March 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
UPPER GREEN RIVER in UTAH	6	124	131
ASHLEY CREEK	2	150	193
BLACK'S FORK RIVER	2	106	92
SHEEP CREEK	1	111	122
DUCHESNE RIVER	11	155	167
LAKE FORK-YELLOWSTONE CRE	4	164	165
STRAWBERRY RIVER	4	126	139
UINTAH-WHITEROCKS RIVERS	2	200	236
UINTAH BASIN & DAGGET SCD	17	147	157

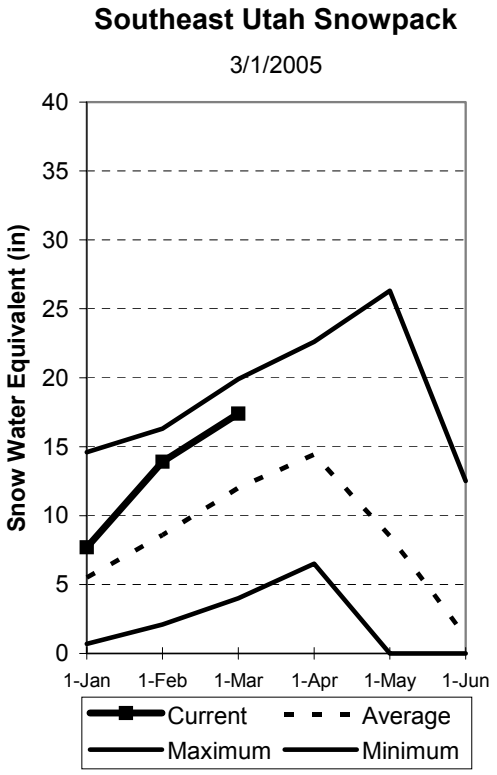
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

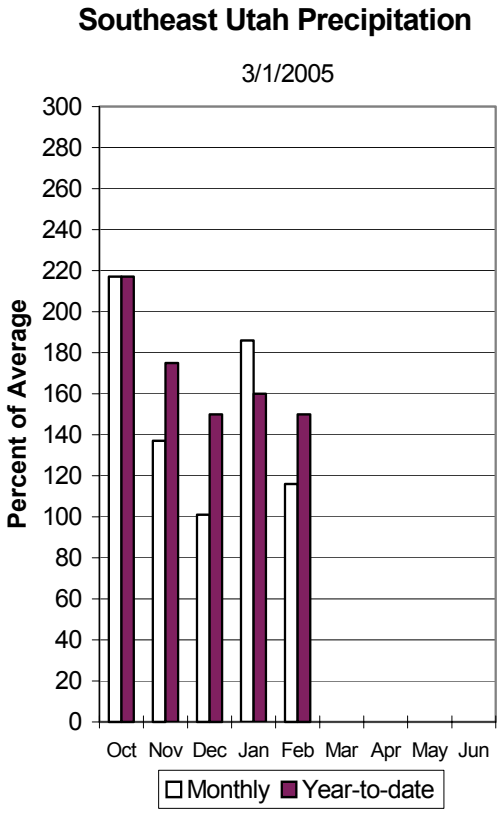
The average is computed for the 1971-2000 base period.

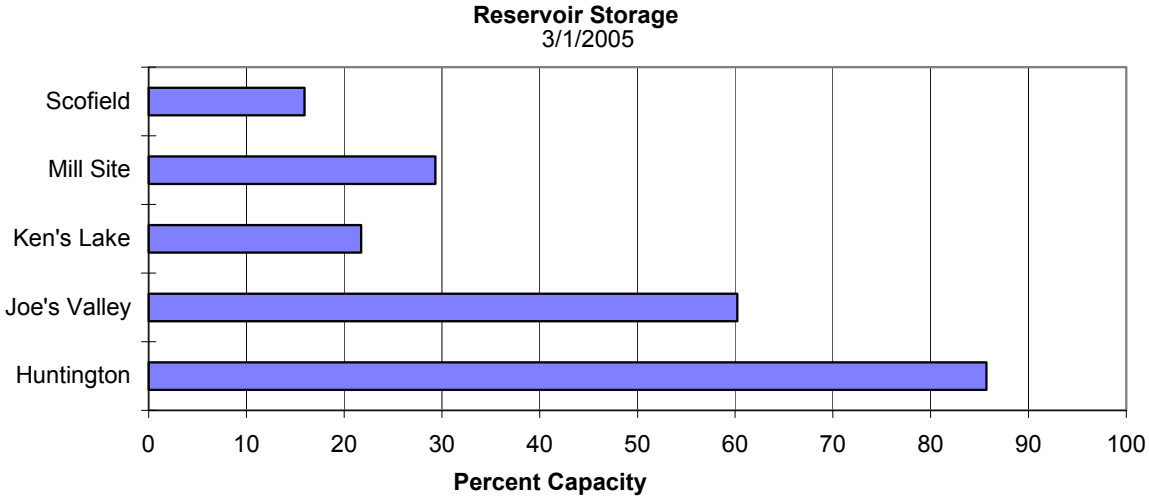
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Carbon, Emery, Wayne, Grand and San Juan Co.
Mar 1, 2005

Snowpacks in this region are much above normal at 145% of average, about 139% of last year and down 14% from last month. Individual sites range from 94% to 332% of average. Precipitation during February was above average at 116%, bringing the seasonal accumulation (Oct-Feb) to 150% of normal. Soil moisture estimates in runoff producing areas are at 60% of saturation in the upper 2 feet of soil compared to 30% last year and down 1% from last month. Forecast streamflows range from 92% to xxx% of average. Reservoir storage is at 38% of capacity, the same as last year. Surface Water Supply Indices for the area are: Price 29%, (below normal) San Rafael area 56% (near average) and Moab 58% (near average). General runoff and water supply conditions are below to near normal.







CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Gooseberry Creek nr Scofield	APR-JUL	8.3	11.1	12.9	108	14.7	17.2	11.9
Scofield Reservoir inflow	APR-JUL	35	42	46	100	50	57	46
White River blw Tabbyune Creek	APR-JUL	11.2	16.1	20	115	24	31	17.4
Green River at Green River, UT	APR-JUL	1960	2610	3050	96	3490	4140	3170
Electric Lake inflow	APR-JUL	9.8	13.2	16.0	102	19.1	24	15.7
HUNTINGTON CK nr Huntington	APR-JUL	33	41	46	92	51	59	50
JOE'S VALLEY RESV Inflow	APR-JUL	32	47	57	98	67	82	58
Ferron Creek nr Ferron	APR-JUL	28	35	41	105	47	57	39
Colorado River nr Cisco	APR-JUL	3090	4020	4650	100	5280	6210	4650
Mill Creek at Sheley Tunnel nr Moab	APR-JUL	3.90	5.60	6.70	134	7.80	9.50	5.00
Seven Mile Creek nr Fish Lake	APR-JUL	3.00	5.70	7.50	107	9.30	12.00	7.00
Muddy Creek nr Emery	APR-JUL	10.1	16.6	21	106	25	32	19.9
North Ck ab R.S. nr Monticello	MAR-JUL	0.66	1.80	2.90	299	4.26	6.73	0.97
South Ck ab Lloyd's Res nr Monticell	MAR-JUL	2.42	3.31	4.00	292	4.75	5.98	1.37
Recapture Ck bl Johnson Ck nr Blandi	MAR-JUL	10.80	13.30	15.00	297	16.60	19.60	5.05
San Juan River nr Bluff	APR-JUL	1550	1820	2000	163	2180	2450	1230

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
HUNTINGTON NORTH	4.2	3.6	3.7	3.4
JOE'S VALLEY	61.6	37.1	33.3	41.5
KEN'S LAKE	2.3	0.5	0.8	1.3
MILL SITE	16.7	4.9	6.1	84.9
SCOFIELD	65.8	10.5	14.6	34.8

CARBON, EMERY, WAYNE, GRAND, & SAN JUAN Co.
Watershed Snowpack Analysis - March 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
PRICE RIVER	3	131	121
SAN RAFAEL RIVER	3	98	101
MUDDY CREEK	1	109	132
FREMONT RIVER	3	206	218
LASAL MOUNTAINS	1	133	131
BLUE MOUNTAINS	1	190	243
WILLOW CREEK	1	147	176
CARBON, EMERY, WAYNE, GRA	13	139	145

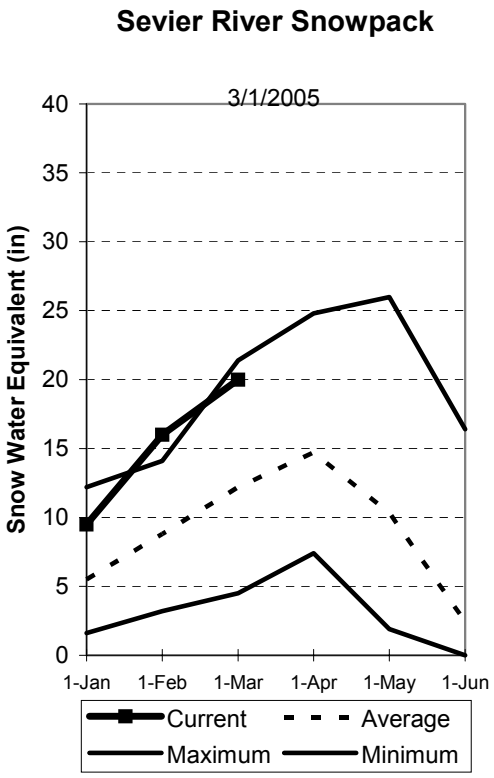
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

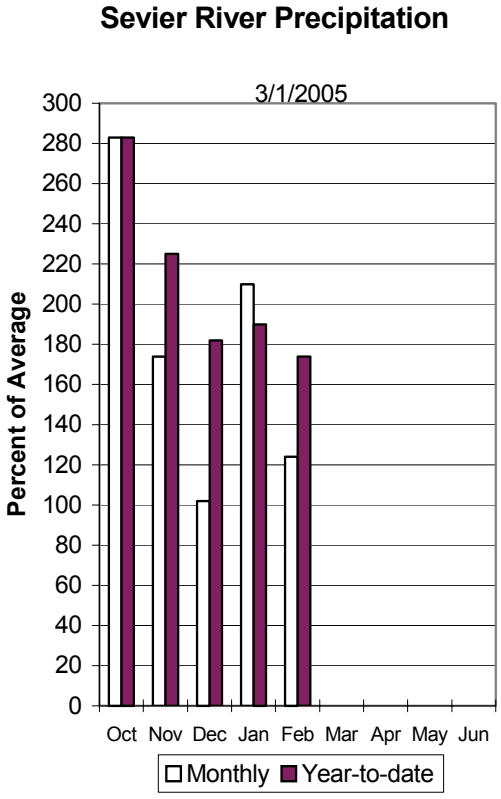
The average is computed for the 1971-2000 base period.

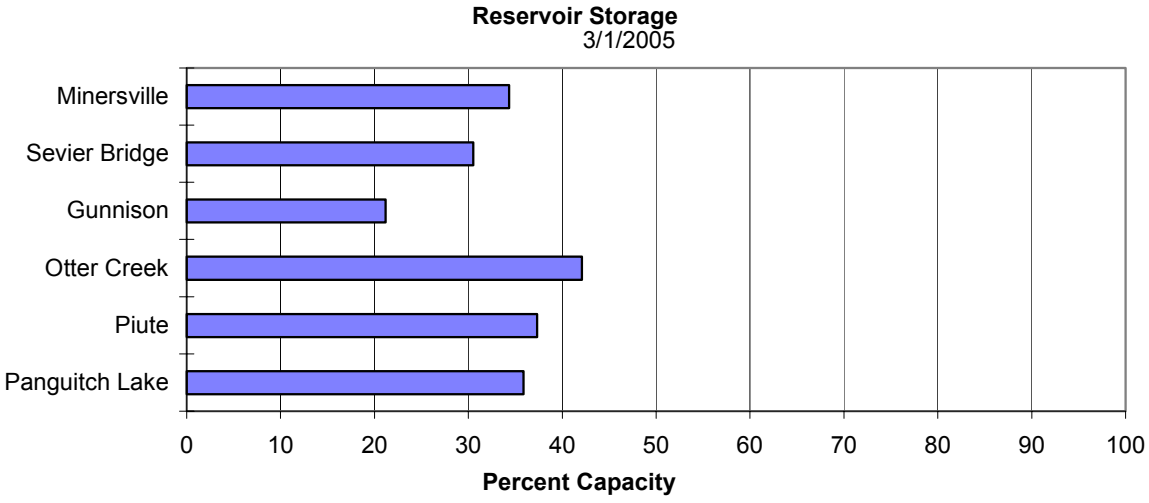
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

Sevier and Beaver River Basins
Mar 1, 2005

Snowpacks on the Sevier River Basin are much above normal at 164% of average, about 146% of last year and down 19% from last month. The lower Sevier area is near average at 95%. Individual sites range from 66% to 332% of average. Precipitation during February was above average at 124% of normal, bringing the seasonal accumulation (Oct-Feb) to 174% of average. Soil moisture estimates in runoff producing areas are at 68% of saturation (Sevier) in the upper 2 feet of soil compared to 31% last year an up 2% from last month. Streamflow forecasts range from 100% to 264% of average. Reservoir storage is at 33% of capacity, 7% more than last year. Surface Water Supply Indices are: Upper Sevier 80%, Lower Sevier 85% and Beaver 74%. Water supply conditions are above average due to high snowpack and soil moisture. The Sevier is currently at 136% of April 1 average peak and given average March accumulation, will be at 153% this April. On the upper Sevier, preparation for high flows is appropriate.







SEVIER & BEAVER RIVER BASINS
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Sevier River at Hatch	APR-JUL	119	136	145	264	155	171	55
Sevier River nr Kingston	APR-JUL	173	196	210	236	224	245	89
EF Sevier R nr Kingston	APR-JUL	59	74	83	218	92	107	38
Sevier R blw Piute Dam	APR-JUL	197	239	265	210	291	335	126
Clear Creek nr Sevier	APR-JUL	21	31	35	159	39	49	22
Salina Creek at Salina	APR-JUL	13.0	19.9	26	132	34	47	19.7
Manti Creek at Manti	APR-JUL	13.8	17.2	20	110	23	28	18.1
Sevier R nr Gunnison	APR-JUL	250	386	470	168	554	690	280
Chicken Creek nr Levan	APR-JUL	2.03	3.35	4.50	100	5.89	8.43	4.50
Oak Creek nr Oak City	APR-JUL	1.09	1.49	1.80	108	2.14	2.69	1.66
Beaver River nr Beaver	APR-JUL	30	36	41	152	46	54	27
Minersville Reservoir inflow	APR-JUL	14.4	21	27	163	33	44	16.6

SEVIER & BEAVER RIVER BASINS
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
GUNNISON	20.3	4.3	2.5	14.6
MINERSVILLE (RkyFd)	23.3	8.0	6.5	16.2
OTTER CREEK	52.5	22.1	20.6	40.0
PIUTE	71.8	26.8	20.4	53.3
SEVIER BRIDGE	236.0	72.0	56.4	175.6
PANGUITCH LAKE	22.3	8.0	4.4	146.8

SEVIER & BEAVER RIVER BASINS
Watershed Snowpack Analysis - March 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	This Year as % of Average
UPPER SEVIER RIVER (south	8	187	237
EAST FORK SEVIER RIVER	3	187	248
SOUTH FORK SEVIER RIVER	5	188	232
LOWER SEVIER RIVER (inclu	6	92	95
BEAVER RIVER	2	149	145
SEVIER & BEAVER RIVER BAS	16	148	164

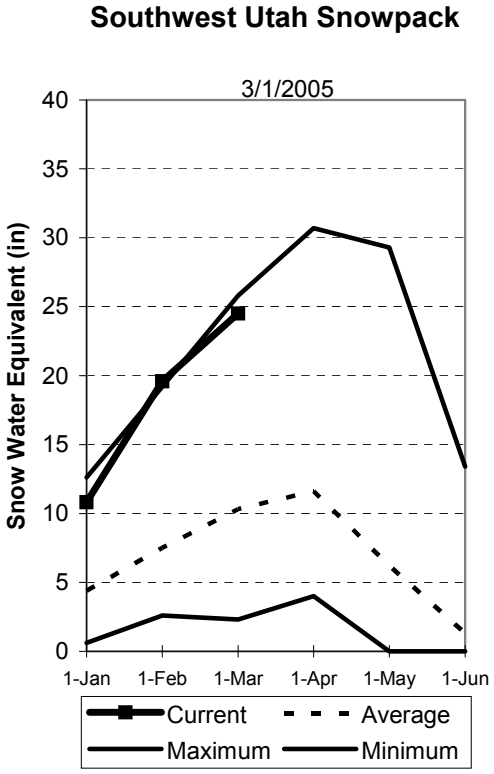
* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

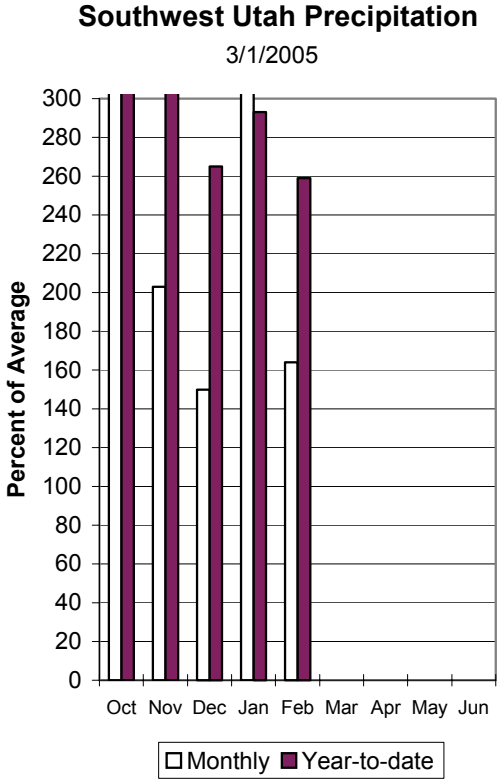
The average is computed for the 1971-2000 base period.

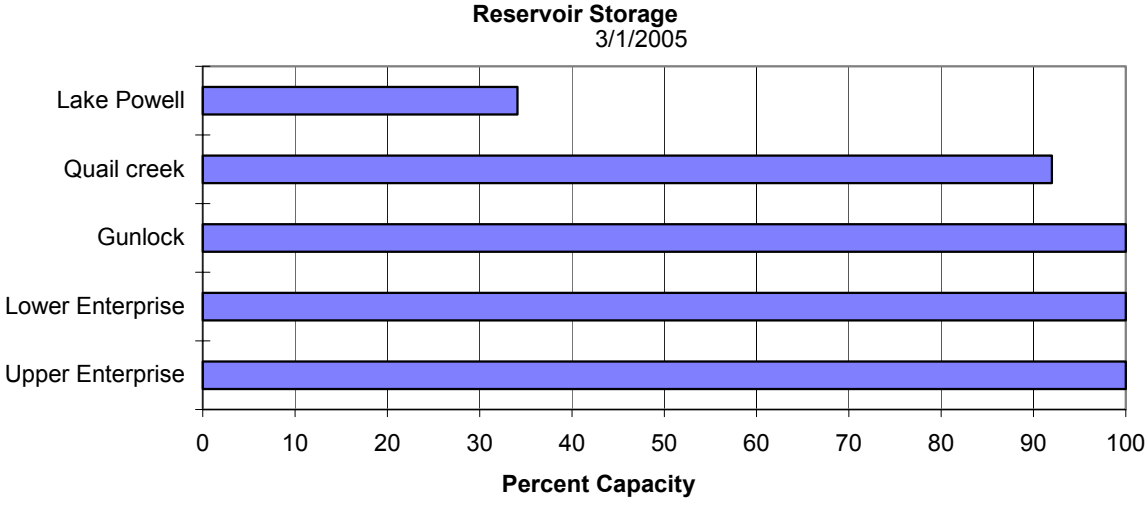
(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

E. Garfield, Kane, Washington, & Iron co.
Mar 1, 2005

Snowpacks in this region are much above normal at 237% of average, about 206% of last year and down 10% from last month. Individual sites range from 36% to 281% of average. Precipitation was much above normal during February at 164% of average, bringing the seasonal accumulation (Oct-Feb) to 259% of normal. Soil moisture estimates in runoff producing areas are at 76% of saturation in the upper 2 feet of soil compared to 30% last year and the same as last month. Forecast streamflows range from 260% to 282% of average. Reservoir storage is at 95% of capacity, 47% more than last year. The Surface Water Supply Index is at 95%, indicating much above normal water availability. February has heightened concerns over the potential for high flows this spring, some of which have already occurred. This area has 211% of normal April 1 peak and with average March accumulations will be at 222% this April.







E. GARFIELD, KANE, WASHINGTON, & IRON Co.
Streamflow Forecasts - March 1, 2005

Forecast Point	Forecast Period	<<====== Drier ====== Future Conditions ======= Wetter =====>> Chance Of Exceeding * 90% (1000AF)	70% (1000AF)	50% (1000AF)	50% (% AVG.)	30% (1000AF)	10% (1000AF)	30-Yr Avg. (1000AF)
Lake Powell inflow	APR-JUL	5700	7430	8600	108	9770	11500	7930
Virgin River nr Virgin	APR-JUL	119	147	167	261	189	225	64
Virgin River nr Hurricane	APR-JUL	152	179	193	280	205	235	69
Santa Clara River nr Pine Valley	APR-JUL	9.82	13.05	15.50	282	18.16	22.47	5.50
Coal Creek nr Cedar City	APR-JUL	35	44	50	259	57	68	19.3

E. GARFIELD, KANE, WASHINGTON, & IRON Co.
Reservoir Storage (1000 AF) - End of February

Reservoir	Usable Capacity	*** Usable Storage *** This Year	Last Year	Avg
GUNLOCK	10.4	10.4	4.9	4.9
LAKE POWELL	24322.0	8288.0	10569.0	---
QUAIL CREEK	40.0	36.8	24.0	29.7
UPPER ENTERPRISE	10.0	10.0	0.0	---
LOWER ENTERPRISE	2.6	2.6	0.6	90.0

E. GARFIELD, KANE, WASHINGTON, & IRON Co.
Watershed Snowpack Analysis - March 1, 2005

Watershed	Number of Data Sites	This Year as % of Last Yr	Average
VIRGIN RIVER	5	214	254
PAROWAN	2	226	268
ENTERPRISE TO NEW HARMONY	2	110	122
COAL CREEK	2	218	260
ESCALANTE RIVER	2	221	266
E. GARFIELD, KANE, WASHIN	9	203	237

* 90%, 70%, 50%, 30%, and 10% chances of exceeding are the probabilities that the actual volume will exceed the volumes in the table.

The average is computed for the 1971-2000 base period.

(1) - The values listed under the 10% and 90% Chance of Exceeding are actually 5% and 95% exceedance levels.
(2) - The value is natural volume - actual volume may be affected by upstream water management.

S N O W C O U R S E D A T A

MARCH 2005

SNOW COURSE	ELEV.	DATE	SNOW	WATER	LAST	AVERAGE
	DEPTH	CONTENT	YEAR	71-00		
AGUA CANYON SNOTEL	8900	3/01	64	19.9	10.9	7.3
ALTA CENTRAL	8800	3/01	107	37.4	33.1	31.1
BEAVER DAMS SNOTEL	8000	3/01	26	6.7	9.3	10.2
BEAVER DIVIDE SNOTEL	8280	3/01	40	11.1	8.4	10.2
BEN LOMOND PK SNOTEL	8000	3/01	103	33.9	35.2	34.3
BEN LOMOND TR SNOTEL	6000	3/01	69	19.8	25.1	19.0
BEVAN'S CABIN	6450	2/25	29	9.3	14.8	9.2
BIG FLAT SNOTEL	10290	3/01	80	22.6	13.7	15.0
BIRCH CROSSING	8100	2/24	26	8.1	8.3	6.7
BLACK FLAT-U.M. CK S	9400	3/01	42	10.7	9.1	8.5
BLACK'S FORK GS-EF	9340	2/26	31	9.0	8.8	7.8
BLACK'S FORK JUNCTN	8930	2/26	27	6.8	8.7	7.7
BOX CREEK SNOTEL	9800	3/01	58	17.2	13.4	11.0
BRIAN HEAD	10000	2/24	82	30.6	15.3	16.5
BRIGHTON SNOTEL	8750	3/01	90	27.9	18.6	20.4
BRIGHTON CABIN	8700	3/01	96	33.1	23.4	23.1
BROWN DUCK SNOTEL	10600	3/01	89	28.9	15.5	15.0
BRYCE CANYON	8000				6.4	4.9
BUCK FLAT SNOTEL	9800	3/01	50	15.5	15.9	15.3
BUCK PASTURE	9700	2/26	61	16.5	9.8	14.0
BUCKBOARD FLAT	9000	2/24	69	22.7	10.8	11.0
BUG LAKE SNOTEL	7950	3/01	58	18.1	15.6	17.1
BURT'S-MILLER RANCH	7900	2/26	20	5.7	5.8	4.7
CAMP JACKSON SNOTEL	8600	3/01	79	31.3	16.5	12.9
CASCADE MOUNTAIN SNO	7770	3/01	58	18.6	19.0	-
CASTLE VALLEY SNOTEL	9580	3/01	80	25.9	13.8	11.8
CHALK CK #1 SNOTEL	9100	3/01	-	22.6	16.7	19.9
CHALK CK #2 SNOTEL	8200	3/01	47	14.4	11.7	12.9
CHALK CREEK #3	7500	2/26	26	7.0	6.9	6.8
CHEPETA SNOTEL	10300	3/01	75	27.2	12.1	11.4
CLAYTON SPRINGS SNTL	10000	3/01	74	21.7	12.2	-
CLEAR CK RIDG #1 SNT	9200	3/01	64	21.9	16.6	16.7
CLEAR CK RIDG #2 SNT	8000	3/01	-	13.8	12.9	12.3
CORRAL	8200				-	-
CURRANT CREEK SNOTEL	8000	3/01	43	12.3	11.6	9.6
DANIELS-STRAWBERRY S	8000	3/01	57	19.8	16.6	15.1
DILL'S CAMP SNOTEL	9200	3/01	52	16.2	14.8	12.3
DONKEY RESERVOIR SNO	9800	3/01	50	11.2	5.0	6.6
DRY BREAD POND SNTL	8350	3/01	56	20.0	16.9	19.0
DRY FORK SNOTEL	7160	3/01	35	9.6	17.6	14.5
EAST WILLOW CREEK SN	8250	3/01	49	12.5	8.5	7.1
FARMINGTON U. SNOTEL	8000	3/01	95	39.5	40.3	27.3
FARMINGTON LOWER SC	6950	2/25	68	22.9	28.4	21.2
FARMINGTON L. SNOTEL	6780	3/01	60	20.6	30.8	-
FARNSWORTH LK SNOTEL	9600	3/01	65	17.8	15.7	14.8
FISH LAKE	8700	2/27	33	9.8	9.1	7.5
FIVE POINTS LAKE SNO	10920	3/01	70	23.1	14.9	13.8
G.B.R.C. HEADQUARTER	8700	2/27	45	14.5	14.3	13.8
G.B.R.C. MEADOWS	10000	2/27	67	23.4	19.6	19.0
GARDEN CITY SUMMIT	7600	2/25	59	19.2	15.3	13.5
GARDNER PEAK SNOTEL	8350	3/01	67	21.6	-	-
GEORGE CREEK	8840	2/24	74	22.6	19.6	17.3
GOOSEBERRY R.S.	8400	2/27	35	10.0	10.2	9.9
GOOSEBERRY R.S. SNTL	7900	3/01	28	8.2	9.4	7.9
GUTZ PEAK SNOTEL	6820	3/01	50	21.5	-	-
HARDSCRABBLE SNOTEL	7250	3/01	54	18.3	20.6	14.3
HARRIS FLAT SNOTEL	7700	3/01	54	19.4	10.0	6.9
HAYDEN FORK SNOTEL	9100	3/01	48	15.9	10.4	13.2
HENRY'S FORK	10000	2/26	43	11.1	7.9	10.5
HEWINTA SNOTEL	9500	3/01	33	7.7	8.4	9.1
HICKERSON PARK SNTL	9100	3/01	30	7.1	6.4	5.8
HIDDEN SPRINGS	5500	2/25	4	1.2	9.4	5.9
HOBBLE CREEK SUMMIT	7420	2/27	45	13.8	12.7	13.1
HOLE-IN-ROCK SNOTEL	9150	3/01	30	5.7	5.8	5.7
HORSE RIDGE SNOTEL	8260	3/01	62	19.8	18.1	20.2
HUNTINGTON-HORSESHOE	9800	2/27	66	23.4	16.3	19.4
INDIAN CANYON SNOTEL	9100	3/01	59	19.6	11.3	9.6
JOHNSON VALLEY	8850	2/27	37	10.6	7.7	6.4
JONES CORRAL G.S.	9720				-	-
KILFOIL CREEK	7300	2/25	46	14.0	14.7	12.4
KILLYON CANYON	6300	3/01	8	3.2	12.9	8.7
SNOW COURSE	ELEV.	DATE	SNOW	WATER	LAST	AVERAGE
	DEPTH	CONTENT	YEAR	71-00		

KIMBERLY MINE SNOTEL	9300	3/01	59	16.9	14.9	13.3
KING'S CABIN SNOTEL	8730	3/01	46	16.5	12.3	9.4
KLONDIKE NARROWS	7400	2/25	58	17.8	15.8	16.8
KOLOB SNOTEL	9250	3/01	126	43.2	17.0	17.8
LAKEFORK #1 SNOTEL	10100	3/01	69	19.8	11.0	10.5
LAKEFORK BASIN SNTL	10900	3/01	72	20.4	14.7	16.6
LAKEFORK MOUNTAIN #3	8400	2/26	40	12.5	8.9	6.1
LAMBS CANYON	7400	2/25	49	13.3	14.7	14.5
LASAL MOUNTAIN LOWER	8800	2/25	38	10.2	8.9	8.1
LASAL MOUNTAIN SNTL	9850	3/01	50	14.0	10.5	10.7
LIGHTNING RIDGE SNTL	8220	3/01	56	16.2	-	-
LILY LAKE SNOTEL	9050	3/01	47	13.4	9.2	10.8
LITTLE BEAR LOWER	6000	2/25	44	13.4	14.9	10.2
LITTLE BEAR SNOTEL	6550	3/01	44	14.4	13.7	12.8
LITTLE GRASSY SNOTEL	6100	3/01	-	2.1	5.3	5.8
LONG FLAT SNOTEL	8000	3/01	-	14.0	9.3	7.4
LONG VALLEY JCT. SNT	7500	3/01	34	13.0	8.9	5.8
LOOKOUT PEAK SNOTEL	8200	3/01	78	26.1	27.6	20.1
LOST CREEK RESERVOIR	6130	2/25	18	7.5	9.4	5.9
LOUIS MEADOW SNOTEL	6700	3/01	44	15.7	22.3	-
MAMMOTH-COTTONWD SNT	8800	3/01	50	17.4	14.7	17.6
MERCHANT VALLEY SNTL	8750	3/01	58	15.7	12.0	11.4
MIDDLE CANYON	7000	2/25	36	11.4	18.7	12.2
MIDWAY VALLEY SNOTEL	9800	3/01	145	57.7	23.2	19.4
MILL CREEK	6950	2/25	51	13.8	19.5	16.6
MILL-D NORTH SNOTEL	8960	3/01	72	27.1	22.0	21.0
MILL-D SOUTH FORK	7400	3/01	53	15.0	17.4	16.9
MINING FORK SNOTEL	8000	3/01	58	22.4	22.3	14.9
MONTE CRISTO SNOTEL	8960	3/01	73	25.0	21.6	24.7
MOSBY MTN. SNOTEL	9500	3/01	72	21.7	12.4	9.3
MT.BALDY R.S.	9500	2/27	65	21.3	18.3	19.9
MUD CREEK #2	8600	2/27	51	15.0	11.6	12.0
OAK CREEK	7760	2/27	43	11.9	11.4	10.0
PANGUITCH LAKE R.S.	8200	2/25	45	11.9	8.1	4.0
PARLEY'S CANYON SNTL	7500	3/01	42	13.0	15.4	15.3
PARRISH CREEK SNOTEL	7740	3/01	60	20.2	28.2	-
PAYSON R.S. SNOTEL	8050	3/01	54	15.2	18.2	17.2
PICKLE KEG SNOTEL	9600	3/01	44	11.2	15.0	14.1
PINE CREEK SNOTEL	8800	3/01	-	18.6	22.4	19.3
RED PINE RIDGE SNTL	9200	3/01	48	13.4	13.8	14.2
REDDEN MINE LOWER	8500	2/26	60	19.8	13.7	15.1
REES'S FLAT	7300	2/27	35	9.7	12.4	11.2
ROCK CREEK SNOTEL	7900	3/01	-	13.8	8.8	7.9
ROCKY BN-SETTLEMT SN	8900	3/01	67	24.9	25.6	21.2
SEELEY CREEK SNOTEL	10000	3/01	48	13.2	13.2	12.3
SMITH MOREHOUSE SNTL	7600	3/01	44	14.0	9.9	12.4
SNOWBIRD SNOTEL	9700	3/01	126	48.6	35.2	28.3
SPIRIT LAKE	10300	2/26	58	18.4	11.1	10.5
SQUAW SPRINGS	9300	2/27	40	11.4	8.4	6.6
STEEL CREEK PARK SNO	10100	3/01	47	12.4	10.6	12.7
STILLWATER CAMP	8550	2/26	37	9.8	7.0	8.8
STRAWBERRY DIVIDE SN	8400	3/01	57	18.6	16.5	16.3
SUSC RANCH	8200	2/25	49	17.6	13.2	8.1
TALL POLES	8800	2/24	57	17.8	12.3	12.1
TEMPLE FORK SNOTEL	7410	3/01	56	16.4	13.7	-
THAYNES CANYON SNTL	9200	3/01	96	32.9	19.2	19.3
THISTLE FLAT	8500				-	-
TIMBERLINE	9100				-	-
TIMPANOGOS DIVIDE SN	8140	3/01	96	32.5	21.3	20.4
TONY GROVE LK SNOTEL	8400	3/01	89	35.8	29.2	30.0
TONY GROVE R.S.	6250	2/25	47	14.2	12.0	11.3
TRIAL LAKE	9960	2/26	81	27.5	19.2	20.3
TRIAL LAKE SNOTEL	9960	3/01	75	25.7	16.8	20.6
TROUT CREEK SNOTEL	9400	3/01	54	17.2	10.2	8.1
UPPER JOES VALLEY	8900	2/27	35	9.1	10.5	9.3
VERNON CREEK SNOTEL	7500	3/01	43	11.1	15.1	10.1
VIPONT	7670	2/25	45	15.4	17.4	12.2
WEBSTER FLAT SNOTEL	9200	3/01	78	27.7	16.0	13.5
WHITE RIVER #1 SNTL	8550	3/01	54	16.2	11.1	11.6
WHITE RIVER #3	7400	2/27	27	7.7	8.4	7.8
WIDTSOE #3 SNOTEL	9500	3/01	81	32.2	12.2	9.7
WRIGLEY CREEK	9000	2/27	48	13.1	11.7	9.6
YANKEE RESERVOIR	8700	2/24	44	11.8	10.5	8.4

UTAH SURFACE	WATER	SUPPLY	INDEX
Snow Surveys	NRCS	USDA	
Basin or Region	SWSI/%	Percentile	Years with
Feb, 2005			Similar SWSI
Bear River	-3.8	4%	04,03,93
Ogden River	-0.1	49%	67,91,89,93
Weber River	-0.1	49%	70,68,96,98
Provo	-1.0	38%	58,2001,54,66
West Uintah Basin	2.0	74%	76,86,01,00
East Uintah Basin	2.6	81%	84,01,95,98
Price River	-1.7	29%	89,98,62,93
San Rafael	0.5	56%	00,74,82,98
Moab	0.6	58%	94,97,92,98
Upper Sevier River	2.5	80%	58,79,98,84
Lower Sevier River	2.9	85%	99,73,80,86
Beaver River	2.0	74%	68,97,82,84
Virgin River	3.8	95%	88,98,95,93
Snow Surveys			SWSI Scale: -4 to 4
245 N Jimmy Doolittle Rd			Percentile: 0 - 100%
Salt Lake City, UT			
(801) 524-5213			

What is a Surface Water Supply Index?

The Surface Water Supply Index (SWSI) is a predictive indicator of total surface water availability within a watershed for the spring and summer water use seasons. The index is calculated by combining pre-runoff reservoir storage (carryover) with forecasts of spring and summer streamflow which are based on current snowpack and other hydrologic variables. SWSI values are scaled from +4.1 (abundant supply) to -4.1 (extremely dry) with a value of zero (0) indicating media water supply as compared to historical analysis. SWSI's are calculated in this fashion to be consistent with other hydroclimatic indicators such as the Palmer Drought Index and the Precipitation index.

Utah Snow Surveys has also chosen to display the SWSI as a PERCENT CHANCE OF NON-EXCEEDANCE. While this is a very cumbersome name, it has the simplest application. It can be best thought of as a simple scale of 1 to 99 with 1 being the drought of record (driest possible conditions) and 99 being the flood of record (wettest possible conditions) and a value of 50 representing average conditions. This rating scale is a percentile rating as well, for example a SWSI of 75% means that this years water supply is greater than 75% of all historical events and that only 25% of the time has it been exceeded. Conversely a SWSI of 10% means that 90% of historical events have been greater than this one and that only 10% have had less total water supply. This scale is far more intuitive for most people and is totally comparable between basins: a SWSI of 50% means the same relative ranking on watershed A as it does on watershed B, which may not be strictly true of the +4 to -4 scale.

For more information on the SWSI go to: www.ut.nrcs.usda.gov/snow/ on the water supply page. The entire period of historical record for reservoir storage and streamflow is available.

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YOU MAY OBTAIN THIS PRODUCT AS WELL AS CURENT SNOW, PRECIPITATION, TEMPERATURE AND SOIL MOISTURE, RESERVOIR, SURFACE WATER SUPPLY INDEX, AND OTHER DATA BY VISITING OUR WEB SITE @:
http://www.ut.nrcs.usda.gov/snow/

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Utah Water Supply Outlook Report

Natural Resources Conservation Service
Salt Lake City, UT